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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,757	10/18/2001	Carol T. Schembri	10004108-1	7503

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,757

Applicant(s)

SCHEMBRI ET AL.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-20,22-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-20,22-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

5-0-0-1

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 March 2005 has been entered.

Status of the Claims

2. This action is in response to papers filed 25 March 2005 in which claims 1 and 14 were amended. The amendments have been thoroughly reviewed and entered. The previous rejections in the Final Office Action dated 1 December 2004, not reiterated below, are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are discussed below. New grounds for rejection, necessitated by amendment, are discussed.

Claims 1-10, 12-20, 22-24 and 26 are under prosecution.

Claim Objections

3. The Listing of the Claims is objected to because the newly entered amendments are not underlined and the newly amended claims are not identified as "amended". In After Final Papers submitted 28 January 2005, Claims 1 and 14 were amended. As noted in the Advisory Action of 14 March 2005, the amendments were not entered because they introduce new issues. The Listing of Claims submitted with the papers filed 25 March 2005 includes the

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unentered amendments of 28 January 2005 but does not identify the claims or amendments as new amendments. Because the amendments were not entered After Final, they constitute amendments submitted with the RCE.

Applicant is reminded that, according to 37 C.F.R. § 1.121, all amendments and amended claims must be correctly identified.

Claim Rejections - 35 USC § 112

First paragraph of 35 U.S.C. 112: Enablement

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 8 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are drawn to a plastic base layer having a fluorescence of at least 10 reference units. While the specification is enabling for the an array assembly having a plastic base layer, claimed reference units are not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirements and whether undue experimentation would be required to make and use the

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claimed invention (see *In re Wands*, 858 F. 2d 731, 737, 8 USPQ 2d 1400, 1404, 1988). These factors include but are not limited to:

Nature of the Invention

The claims are drawn to an array assembly comprising a plastic base layer having a fluorescence of at least 10 reference units. The nature of the invention is such that units of fluorescent measurement requires some unit standard or standard of measurement.

The specification at page 9, lines 11-20 describes "reference unit":

"Reference unit" in relation to fluorescence measurements herein means the maximum fluorescence obtainable from a fused silica, or one-third the maximum value obtainable from a borosilicate glass. All fluorescence measurements herein, unless otherwise indicated, are integrated fluorescence emission energies from 547 nm to 597 nm, which result from a 1 mm thick section of material, using a monochromated high pressure Xe lamp excitation source centered at 532 nm with a width at half-maximum of about 5 nm. All ratios assume the same unit area of illuminated material. The following may be used as the foregoing referenced materials (available from the National Institute of Standards and Technology, Maryland, U.S.A.): fused silica - Standard Sample 198; borosilicate glass-Standard Reference Material 93a.

The above description describes "reference units" as a maximum fluorescence from silica or one-third maximum from borosilicate glass. The description further describes methods of generating fluorescence using a Xe lamp at excitations from 547 to 597 nm. However, the above description does not teach or describe the quantitative or measurable meaning of a "unit" or the "at least ten reference units" as claimed.

The above description does not describe numerous elements required to define "reference unit" in such a way as to enable one of skill in the art to make and use the claimed invention. The missing elements include the type of Xe lamp used in the measurement. The type of lamp would be essential because the lamps differ by voltage and/or power and differences in voltage and/or power result in different emission energies and hence different fluorescent measurements. A second missing element is the geometry of illumination. The

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geometry includes, angle of illumination, the light path relative to the surface, and the position of the fluorescent detector relative to the surface. All of these influence the amount of fluorescence measured from the glass. Furthermore, it is unclear whether the reference unit is a single value or a variable based on environmental conditions. The nature of the invention is such that units (i.e. at least 10) of measurement requires some **unit** standard or standard of measurement. However, the specification has not described the units so as to enable one of skill in the art to make and use the claimed invention.

State of the Prior Art

The claims are drawn to an array assembly comprising a plastic base layer having a fluorescence of at least 10 reference units. The state of the prior art is such that the claimed reference units are not taught or described in the prior art. Therefore, the reference units are not a known standard of measurement. Because the prior art and instant specification do not or describe the claimed reference units, the claimed invention is not enabled.

Level of Predictability in the Art

The claims are drawn to an array assembly comprising a plastic base layer having a fluorescence of at least 10 reference units. The specification describes "reference unit" at page 9, lines 11-20 as reiterated above. Numerous elements influence fluorescence measurements as discussed above. However, the specification does not teach or describe these elements. Absent a description of elements including type of Xe lamp, geometry of illumination and environmental conditions of illumination, the level of predictability in the art for determining a reference unit as a standard of measurement would be very low.

Existence of Working Examples

The specification does not teach working examples of the claimed reference units.

Quantity of Experimentation Required

The claims are drawn to an array assembly comprising a plastic base layer having a fluorescence of at least 10 reference units. In view of the nature of the invention in which units

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of fluorescent measurement requires some unit standard or standard of measurement; in view of the state of the prior art which does not teach or describe the claimed reference unit; in view of the of unpredictability in the art with regard to providing a reference unit of fluorescence measurement; and in view of the lack of working examples of the claimed invention, it would require undue experimentation for one skilled in the art to make and use the invention as claimed.

Response to Arguments

6. Applicant cites the specification's definition of "reference unit" as an enabling teaching to the claimed "at least ten reference units". Applicant asserts "the definition is tied to the maximum fluorescence obtainable, or a fraction thereof, this necessarily means that one used the Xe lamp in a manner that provides the maximum fluorescence when determining units. As such, one of skill in the art would find these claims fully enabled". The argument has been considered but is not found persuasive. The cited passage is noted, was discussed in the previous office action and is reiterated above. However, the passage does not define, describe or enable the claimed "at least ten reference **units**" or any quantitative or measurable value used to determine reference units. The claimed "at least ten reference units" requires a teaching of reference **unit** measurement such that one of skill would be enabled to determine/measure reference units quantitatively i.e. determine five reference units or seven reference units etc. However, the specification has not provided any quantitative teaching whereby such unit measurement could be performed. Lacking such a teaching, the specification does not enable one of skill in the art to make and use the invention as claimed.

Applicant asserts that the arguments presented are sound and not "mere arguments of counsel" as asserted in the previous Office Action. The comment is noted, however, it is maintained that arguments regarding the knowledge of one of skill in the art are not supported by factual evidence from one of skill in the art.

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First paragraph of 35 U.S.C. 112: New Matter

7. Claims 1-10, 12-20, 22-24 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The term "continuous" is added to the newly amended independent claims 1 and 14 (from which all other claims depend). The term is used in the claims to define the glass layer. Applicant points to element 14d of Fig. 3 wherein the glass layer is illustrated. Applicant asserts that the Merriam Webster definition of the newly claimed "continuous" i.e. "marked by uninterrupted extension in space, time or sequence" describes that which is illustrated and newly claimed. Applicant's assertions are noted but not found persuasive. Applicant appears to be asserting that the newly claimed continuous glass layer in view of Merriam Webster is uninterrupted. However, the specification does not support this assertion. While Figure 3 clearly illustrates a glass layer, the illustration nor specification describe the glass layer as either continuous or uninterrupted as asserted. As Applicant notes, the specification teaches deposition of the glass layer via sputtering. In contrast to a continuous or uninterrupted layer, deposition via sputtering suggests an uneven and/or spotted deposition resulting in a non-continuous layer of spots. The specification at page 14, lines 11-22 defines the glass layer as follows:

Glass layer 14d (which term is used to include silica) may be deposited onto reflective layer 14c by sputtering, plasma enhanced chemical vapor deposition or similar techniques such as described in. Glass layer 14d may optionally be used without reflective layer 14c. Several manufacturers have commercial capabilities for providing films coated with metal and glass layers, for example, Sheldahl Corporation, Northfield, MN (see their world wide web site at sheldahl.com), and General Atomic, San Diego, CA (having a world wide web site at ga.com) Glass layer 14d may have any suitable thickness, for example greater than 1, 10 or 100 nm, and less than 1000, 700, or 400 nm but typically has a thickness about W wavelength of the light used to illuminate array features during reading, or an odd multiple of that amount. For example, 40 to 200 nm, or 60 to 120nm (or even 80 to 100nm), or an odd integer multiple of

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any of the foregoing thickness ranges (for example, 300nm may be used) provided the layer is not so thick that web 10 is no longer flexible.

The above description, nor the specification in its entirety, describe the newly claimed "continuous" glass layer. It is suggested that the claims be amended to describe the glass layer as defined in the specification.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-6, 9-10, 12-17, 20, 22-24 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al (U.S. Patent Application Publication No. 2001/0051714, filed 10 January 2001) in view of Giaver (U.S. Patent No. 3,979,184, issued 7 September 1976) or Dickinson (WO 01/18524, published 15 March 2001).

Regarding Claim 1, Chen et al disclose a flexible array assembly (Abstract) comprising a plastic base layer a glass layer forward of the base plate and a metallic layer sandwiched between the glass and plastic layers (§ 66), and an array of polymers having a pattern of features on a front (upper) surface of the glass (§ 57). Chen et al do not specifically teach the light-blocking property of the metallic layer. However, intervening metallic layers having light blocking properties were well known and routinely practiced in the art at the time the claimed invention was made as taught by Giaver and Dickenson.

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Giaver teaches a similar assembly comprising a plastic base, a glass layer over the plastic and an intervening metallic layer wherein the metallic layer is “non-transparent” (Column 2, lines 51-57 and Fig. 1) wherein the layered assembly produces “very good” interference colors from visible light and high index of refraction (Column 4, lines 10-20).

Dickenson also teaches a similar assembly comprising a plastic base layer e.g. plastics or optical fiber bundles (page 10, line 32), a glass layer forward of the base plate i.e. glass microspheres (page 16, lines 7 and 10), an array of polymers having a pattern of features on a front surface of the glass i.e. biopolymers immobilized on the arrayed microspheres (page 8, lines 15-22) and a layer between the base and glass layers that blocks illuminating light from reaching the plastic base (page 11, lines 18-25) and wherein the array assembly is flexible i.e. fiber optic bundles (page 10, line 32) wherein the metallic coating provides for more efficient signal collection (page 11, lines 18-19).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the metallic layers of Giaver and/or Dickenson to the metallic layer in the assembly of Chen. One of ordinary skill in the art would have been motivated to do so for the expected benefit of more efficient signal collection as taught by Dickenson (page 11, lines 18-10) and/or for the “very good” interference colors from visible light and high index of refraction as taught by Giaver (Column 4, lines 10-20).

Regarding Claim 2, Chen et al disclose the array wherein the polymers are biopolymers (¶ 58).

Regarding Claim 3, Chen et al disclose the array assembly further comprising an opaque (metallic) layer between the base and glass layers (¶ 66, lines 9-15) and Giaver teaches the metallic layers are opaque i.e. non-transparent (Abstract).

Regarding Claim 4, Chen et al disclose the array assembly further comprising a reflective (metallic) layer between the base and glass layers (¶ 66, lines 9-15) and Dickinson defines the metallic layer as reflective (page 11, lines 18-25).

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Regarding Claim 5, Chen et al disclose the array wherein the reflective layer comprises a metal (§ 66, lines 9-15).

Regarding Claim 6, Chen et al disclose the array wherein the reflective layer comprises dielectric material as defined by Giaver who also teach the reflective layer comprises layers of dielectric materials (Column 3, lines 11-47).

Regarding Claim 9, the claimed assembly is defined as having a base layer that absorbs at least 10% of light at 532 nm. The recitation describes functional aspects of the layer but does not describe structural components. Because the claim does not further limit the structures of Claim 4 and because Chen discloses the structural limitations recited in Claim 4, Chen also disclose the assembly as claimed.

The courts have stated that claims drawn to an apparatus must be distinguished from the prior art in terms of structure rather than function see *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA1959). “[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (see MPEP, 2114).

Regarding Claim 10, Chen et al disclose the assembly further comprising an identifier on the back of the base layer (§ 118).

Regarding Claim 12, Chen et al disclose the assembly is in the form of an elongated web i.e. elongated (e.g. § 77). It is noted that the claim requires the assembly to “in the form of an elongated web”. The claim does not require the assembly be a web, but merely in the form of an elongated web. Chen teach their assembly is elongated (e.g. Fig. 1, 3, 4).

Regarding Claim 13, Chen et al disclose the assembly comprising multiple arrays along the front surface (§ 57, lines 1-6).

Regarding Claim 14, Chen et al disclose a method of fabricating an array assembly using a with a glass layer bound thereto (§ 66) and a metallic layer sandwiched between the glass and plastic layers (§ 66), and an array of polymers having a pattern of features on a front

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(upper) surface of the glass (§ 57). Chen et al do not specifically teach the light-blocking property of the metallic layer. However, intervening metallic layers having light blocking properties were well known and routinely practiced in the art at the time the claimed invention was made as taught by Giaver and Dickenson.

Giaver teaches a similar assembly comprising a plastic base, a glass layer over the plastic and an intervening metallic layer wherein the metallic layer is “non-transparent” (Column 2, lines 51-57 and Fig. 1) wherein the layered assembly produces “very good” interference colors from visible light and high index of refraction (Column 4, lines 10-20).

Dickenson also teaches a similar assembly comprising a plastic base layer e.g. plastics or optical fiber bundles (page 10, line 32), a glass layer forward of the base plate i.e. glass microspheres (page 16, lines 7 and 10), an array of polymers having a pattern of features on a front surface of the glass i.e. biopolymers immobilized on the arrayed microspheres (page 8, lines 15-22) and a layer between the base and glass layers that blocks illuminating light from reaching the plastic base (page 11, lines 18-25) and wherein the array assembly is flexible i.e. fiber optic bundles (page 10, line 32) wherein the metallic coating provides for more efficient signal collection (page 11, lines 18-19).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the metallic layers of Giaver and/or Dickenson to the metallic layer in the assembly method of Chen. One of ordinary skill in the art would have been motivated to do so for the expected benefit of more efficient signal collection as taught by Dickenson (page 11, lines 18-10) and/or for the “very good” interference colors from visible light and high index of refraction as taught by Giaver (Column 4, lines 10-20).

Regarding Claim 15, Chen et al disclose the method wherein the intervening layer comprising a reflective (metallic) layer (§ 66, lines 9-15) and Dickinson defines the metallic layer as reflective (page 11, lines 18-25).

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Regarding Claim 16, Chen et al disclose the array wherein the reflective layer comprises a metal (¶ 66, lines 9-15).

Regarding Claim 17, Chen et al disclose the array wherein the reflective layer comprises dielectric material as defined by Giaver who also teach the reflective layer comprises layers of dielectric materials (Column 3, lines 11-47).

Regarding Claim 20, Chen et al disclose the assembly further comprising an identifier on the back of the base layer (¶ 118).

Regarding Claim 22, Chen et al disclose the method wherein assembly is in the form of an elongated web i.e. elongated (e.g. ¶ 77). It is noted that the claim requires the assembly to “in the form of an elongated web”. The claim does not require the assembly be a web, but merely in the form of an elongated web. Chen teach their assembly is elongated (e.g. Fig. 1, 3, 4).

Regarding Claim 23, Chen et al disclose the method wherein multiple arrays are formed by depositing drops onto the front surface of the glass layer wherein the drops contain polymers or polymer precursors (e.g. Fig. 3 and ¶ 80, 97 and 117).

Regarding Claim 24, Chen et al disclose the method wherein the polymers are polynucleotides or peptides (¶ 80).

Regarding Claim 26, Chen et al disclose the method wherein the layer between the base and glass layers is opaque (i.e. metallic, ¶ 66, lines 9-15) and Giaver teaches the metallic layers are opaque i.e. non-transparent (Abstract).

10. Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (U.S. Patent Application Publication No. 2001/0051714, filed 10 January 2001).

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Regarding Claims 7 and 18, Chen et al disclose an array assembly and method of making the assembly comprising a plastic base layer a glass layer forward of the base plate (§ 66), and an array of polymers having a pattern of features on a front (upper) surface of the glass (§ 57) wherein the substrate has a thickness (diameter) of 125µ m and teaches that other diameters are available (§ 68) but they do not specifically teach a thickness of 40 to 200nm.

However, the courts have stated that “where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.” *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Therefore, the claimed thickness does not distinguish the instant invention over the glass layer of Chen et al because one of ordinary skill in the art would have expected the glass layers to perform equally. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the glass thickness of Chen et al based on their suggestion to do so (§ 68) for the obvious benefits of optimizing the thickness to thereby optimize results.

It is noted that *In re Aller*, 220 F.2d 454,456, 105 USPQ 233,235 states where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum by routine experimentation.

Double Patenting

11. The previous rejection under obviousness-type double patenting is withdrawn in view of the Terminal Disclaimer filed 8/09/04.

Conclusion

12. No claim is allowed.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.


BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
June 1, 2005